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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TANG, KAREN C

ART UNIT	PAPER NUMBER
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2151

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/851,363

Applicant(s)

JU ET AL.

Examiner

Karen C. Tang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-33,35-71 and 74-85 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-33, 35-71, 74-85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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- This action is responsive to the amendment and remarks file on 12/08/07.
- Claims 1, 2, 4-33, 35-71, 74-85 are currently under examination.
- The application is reopen.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, 4-33, 35-71, 74-85 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not contain the “removable interface cards” which stated in the independent claims. Nor does it contain limitation on the router module “separate” from the plurality of removable interface cards, limitation on, “packets received from at least two different ones of the plurality of interface card” in Claims 11, 24, 42, 55, and 67”, and limitation on “midplane communicates to the router module packets received from the network by at least two different one of the interface cards” in Claim 16, and 47.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 4-33, 35-71, 74-85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. In the independent claims, there are plurality “removable interface cards” and “interface cards”, it is unclear whether or not they are the same thing.

Claims 1, 2, 4-33, 35-71, 74-85 are recites the limitation "interface cards*" in *claim 1, Lines 5. There is insufficient antecedent basis for this limitation in the claim.

It is unclear in Claim 83, Lines 16, how the forward packets back to the interface cards by “way of the midplane”?

For examining purpose, the removable interface cards is being interprets as interface cards, the router module separate from the plurality of removable interface cards is being interprets as within the same entity.

Limitation of “packets received from at least two different ones of the plurality of interface card” in Claims 11, 24, 42, 55, and 67, will be interprets as packets received from interface card.

Limitation of “midplane communicates to the router module packets received from the network by at least two different one of the interface cards.” in Claim 16, and 47 will be interprets as midplane passing information between interface cards and router module.

Limitation on “..by the way of midplane” in Claim 83, will be interprets as midplane passing information between interface cards and router module.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, “the packet forward engine and the

interface card concentrator module are integrated into a single unit” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-14, 32, 35-42, 44, 45, 63-70, 82, and 84 are rejected under 35 U.S.C. 102(e) as being anticipated by Fan (US 6,643,269).

1. Referring to Claims 1, 32, 63, 82, and 84, Fan disclosed a routing device comprising: a plurality of removable interface cards to communicate packets using a network (ring interface cards, refer to Col 8, Lines 5-20); and a router module separate from the plurality of removable interface cards, the router module comprising a packet forwarding engine and an interface card concentrator module, wherein the interface card concentrator couples the packet forwarding engine to the plurality of interface cards (refer to Col 6, Lines 30-40), wherein the interface card concentrator module communicates packets from at least two of the removable interface cards to the packet forwarding engine, wherein the packet forwarding engine performs route lookups for the packets received from the at least two interface cards by way of the interface card concentrator module, and wherein the packet forwarding engine selects routes for the packets and forwards the packets back to the plurality of interface cards via the interface card concentrator module, and wherein the packet forwarding engine and the interface card concentrator module are integrated into a single unit (since the forwarding engine and interface card concentrate module are integrated into a single unit, it is being interprets that they are as one unit, which is the packet processor, refer to Col 7, Lines 5-35, Col 6, Lines 35-40).

a switch arrangement coupled to the plurality of routing devices and configured to switch control from a first routing device to a second routing device (refer to Col 8, Lines 30-35).

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3. Referring to Claims 4 and 35, Fan disclosed at least one memory management circuit to provide data to the interface card concentrator from the packets received from the plurality of interface cards (CPU, refer to Fig 6).

4. Referring to Claims 5 and 36, Fan disclosed a memory coupled to the interface card concentrator (49, 54, refer to Fig 6) and configured to store the data provided to the interface card concentrator module (refer to Col 8, Lines 65-67).

5. Referring to Claim 6, Fan disclosed wherein the interface card concentrator assembles output bound packets from data stored in the memory and forwards the outbound packets to the plurality of interface (refer to Fig 6 and Col 9, Lines 5-20).

6. Referring to Claims 37 and 38, Fan disclosed wherein the memory (49, 54, refer to Fig 6) is configured to store outbound data (refer to Col 8, Lines 65-67).

7. Referring to Claims 7, Fan disclosed, wherein the interface card concentrator processes inbound packets received from the plurality of interface cards to remove labels from the inbound packets, and stores data from the processed inbound packets in the memory (refer to Col 9, Lines 40-67, processor must remove/encapsulate the label/header in order to process the inbound packets, and store the data to the memory).

8. Referring to Claims 8 and 39, Fan disclosed wherein the memory comprises an SDRAM device (refer to Col 9, Lines 1-5).

9. Referring to Claims 9, 40, and 65, Fan disclosed wherein the memory management circuit is further configured to provide a notification (then sent the data information) to the packet forwarding engine based on information extracted from an incoming data packet (46, refer to Fig 6).

10. Referring to Claims 10, 41 and 66, Fan disclosed wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information (refer to Col 7, Lines 10-15).

11. Referring to Claims 11, 14, 42, 45, and 67, Fan disclosed wherein the packet forwarding module is configured to select a route for packets received from at least two different ones of the plurality of interface cards by referencing a forwarding table based on the extracted information, and wherein the forwarding table stores the route information for forwarding data packets received from any of the plurality of interface cards (refer to Col 6, Lines 35-67 and Col 7, Lines 10-30).

12. Referring to Claims 26, 43, 57, and 79, Fan disclosed a routing engine to store a routing table (47, Fig 6).

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13. Referring to Claims 13, and 44, Fan disclosed a memory to store the forwarding table (49, 54, refer to Fig 6)

16. Referring to Claim 68, Fan disclosed wherein the route lookup circuit is configured to select the route by performing a longest prefix match based on the extracted information (refer to Col 6, Lines 38-50).

17. Referring to Claim 64, 69, Fan disclosed wherein the packet processing circuit is configured to remove an L2 header from an incoming data packet (it is inherent that the packet must first be extracted./remove header information in order to obtain proper destination information, refer to Col 4, Lines 55-60, and Col 7, Lines 35-50 and Col 8, Lines 55-65).

18. Referring to Claim 70, Fan disclosed wherein the packet processing circuit is configured to build an L2 header for an outbound data packet (it is inherent that in order to sent out the data, the header information must be “build”, Col 6, Lines 50-55).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 16-30, 33, 43, 47-61, 71, 74-79, and 81, 83, 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al hereinafter Fan (US 6,643,269) in view of Wilford et al hereinafter Wilford (US 6,687,247).

2. Referring to Claims 2, 16, 33, 47, 71, 81, 83 and 85, although Fan disclosed the invention substantially as claimed, Fan is silent regarding a “midplane” coupled between the plurality of removable interface cards and the router module and separating the plurality of removable interface cards from the router module.

Wilford, in an analogous art, disclosed a midplane that is in between a physical interface and router module (refer to Col 5, Lines 1-10).

Hence, providing midplane disclosed by Wilford, would be desired for user to utilize and implement in the router system in order to provide data transferring functionality in between the interface and the router module.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the system of Fan by including the feature such as a midplane.

Furthermore, it must be obvious to comprise a midplane which is between the removable interface cards and router module, since according to the specification, the midplane functionality is to provide power to the interface cards, and the interface cards according to Fan must have power in order for it to function, therefore, there must be a midplane in between the removable interface cards and router module.

3. Referring to Claim 74, Fan disclosed at least one memory management circuit to provide data to the interface card concentrator from the packets received from the plurality of interface cards (CPU, refer to Fig 6).

4. Referring to Claim 75, Fan disclosed a memory coupled to the interface card concentrator (49, 54, refer to Fig 6) and configured to store the data provided to the interface card concentrator module (refer to Col 8, Lines 65-67).

6. Referring to Claims 20 and 51, Fan disclosed wherein the memory (49, 54, refer to Fig 6) is configured to store outbound data (refer to Col 8, Lines 65-67).

8. Referring to Claims 21 and 52, Fan disclosed wherein the memory comprises an SDRAM device (refer to Col 9, Lines 1-5).

9. Referring to Claims 22, 53, and 77, Fan disclosed wherein the memory management circuit is further configured to provide a notification (then sent the data information) to the packet forwarding engine based on information extracted from an incoming data packet (46, refer to Fig 6).

10. Referring to Claims 23 and 54, Fan disclosed wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information (refer to Col 7, Lines 10-15).

11. Referring to Claims 19, 24, 28, 50, 55, 59 and 78, Fan disclosed wherein the packet forwarding module is configured to select a route for packets received from at least two different ones of the plurality of interface cards by referencing a forwarding table based on the extracted information, and wherein the forwarding table stores the route information for forwarding data packets received from any of the plurality of interface cards (refer to Col 6, Lines 35-67 and Col 7, Lines 10-30).

12. Referring to Claims 26, 43, 57, and 79, Fan disclosed a routing engine to store a routing table (47, Fig 6).

13. Referring to Claims 27 and 58, Fan disclosed a memory to store the forwarding table (49, 54, refer to Fig 6)

14. Referring to Claims 17 and 48, Fan disclosed wherein the single module comprises a single printed circuit card that interconnects the packet processing circuit, the memory management circuit, and the route lookup circuit (38, refer to Fig 6).

15. Referring to Claims 18, 49 and 76, Fan disclosed a memory coupled to the packet processing circuit and configured to store incoming data and incoming data. (47 is a type of memory, which stores incoming data, refer to Fig 6).

16. Referring to Claims 25, and 56, Fan disclosed wherein the route lookup circuit is configured to select the route by performing a longest prefix match based on the extracted information (refer to Col 6, Lines 38-50).

17. Referring to Claims 29 and 60, Fan disclosed wherein the packet processing circuit is configured to remove an L2 header from an incoming data packet (it is inherent that the packet must first be extracted./remove header information in order to obtain proper destination information, refer to Col 4, Lines 55-60, and Col 7, Lines 35-50 and Col 8, Lines 55-65).

18. Referring to Claims 30 and 61, Fan disclosed wherein the packet processing circuit is configured to build an L2 header for an outbound data packet (it is inherent that in order to sent out the data, the header information must be “build”, Col 6, Lines 50-55).

Claims 15, 31, 46, 62 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al hereinafter Fan (US 6,643,269) in view of Wilford et al hereinafter Wilford (US 6,687,247) in further view of Zadikian et al hereinafter Zadikian (US 6,724,757).

19. Referring to Claims 15, 31, 46, 62 and 80, Fan disclosed a router module to process the data packet and to forward the data packet between the interface modules (refer to Col 9, Lines 20-45).

although Fan and Wilford disclosed the invention substantially as claimed, they are silent on disclosed a redundant router processing data in response to the malfunction of the router module.

Zadikian, in an analogous art disclosed a redundant router being utilized in the case of malfunction (refer to Col 8, Lines 10-25).

Hence, providing a backup function by providing a redundant router disclosed by Zadikian, would be desired for user to utilized in the case when the router failure.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the system of Fan by including the features which providing ability to improve the switching speed and minimizes the impact of such redundancy on other connections.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 4-33, 35-71, 74-85 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Examiner's Notes: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s)

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the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen C. Tang whose telephone number is (571)272-3116. The examiner can normally be reached on M-F 7 - 3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on (571)272-3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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